

**WAFER AND METHOD OF PRODUCING A SUBSTRATE  
BY TRANSFER OF A LAYER THAT INCLUDES FOREIGN SPECIES**

**ABSTRACT**

5                   A method of producing a substrate that has a transfer crystalline layer  
transferred from a donor wafer onto a support. The transfer layer can include one or more  
foreign species to modify its properties. In the preferred embodiment an atomic species is  
implanted into a zone of the donor wafer that is substantially free of foreign species to form  
10 an embrittlement or weakened zone below a bonding face thereof, with the weakened zone  
and the bonding face delimiting a transfer layer to be transferred. The donor wafer is  
preferably then bonded at the level of its bonding face to a support. Stresses are then  
preferably applied to produce a cleavage in the region of the weakened zone to obtain a  
substrate that includes the support and the transfer layer. Foreign species are preferably  
15 diffused into the thickness of the transfer layer prior to implantation or after cleavage to  
modify the properties of the transfer layer, preferably its electrical or optical properties. The  
preferred embodiment produces substrates with a thin InP layer rendered semi-insulating by  
iron diffusion.